

REMARKS

In paragraphs 1-2 of the Office Action dated December 07, 2005, Claims 20-39 were withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to non-elected inventions. Applicant cancels claims 20-39 to remove them from examination at this time.

In paragraphs 3-4 of the Office Action, claims 1, 3 and 14-19 were rejected under 35 U.S.C. 103(a) as being unpatentable over Ebert et al in view of Tam. Applicant amends the claims to more particularly point out the present invention and distinguish it from both Ebert et al and Tam. Specifically, claim 1 has been amended to require that the presser head on the deposition finger be used to press the reinforcing thread against the support surface. In addition, claim 1 has been amended to require that the deposition finger extends from a deposition head and that the deposition finger be movable relative to said deposition head. Support for these limitations are found in FIGS. 1-3 and Paragraph 55 of the specification.

The above amendments to the claims are intended to point out that applicant's claimed process is substantially different from Ebert et al, Tam and the other references of record. As shown in FIG. 1, applicants deposition head 5 is designed to be movable along path 7. This provides for both horizontal and vertical movement of the deposition head relative to the support surface 3. In addition, as shown in FIGS. 2 and 3 and described in Paragraph 55, the deposition finger 11 can be rotated about the longitudinal axis (Δ) (see FIG. 3) and extended/retracted along the Δ axis (see FIG. 2). This configuration allows one to use the process of the present invention, as now claimed, to deposit reinforcing threads in a multi-dimensional fashion in order to make awkward or complex tri-dimensional shapes that cannot be made using the cited references.

Ebert et al is directed to a method for making fiber composite gratings that are used in high temperature furnaces (see Paragraph 26). The gratings are made in a batch type process in which a pre-shaped uncured grating (perform) is placed in a metal die and cured under pressure (see Paragraphs 27-31). This type of batch process, where pressure is applied to the entire structure at the same time, is substantially different from applicant's invention, as now claimed, which requires the use of a deposition finger to place and apply pressure to the reinforcement

threads in a continuous and localized fashion as the finger moves about the support surface during fabrication of the multidirectional fibrous reinforcement.

Tam teaches the use of a guide shoe 26 in combination with a compaction roller 30 to place and press thermoplastic tows onto the surface of a rotating mandrel 30. The guide shoe and compaction roller are not movable relative to each other and the entire assembly is only movable horizontally along the surface of the mandrel as it rotates. In addition, the compaction roller cannot be rotated about the Δ axis in the same manner as applicants deposition finger. The tow placement configuration taught by Tam does not allow one to make multi-dimensional shapes in the same manner as the process of the present invention where the deposition head and deposition finger can be moved in multiple dimensions relative to the support surface and each other.

In paragraph 5 of the Office Action, claims 2 and 5-7 were rejected under 35 U.S.C. 103(a) as being unpatentable over Ebert et al, in view of Tam and Zsolnay et al. Zsolnay et al teaches a fiber placement process in which multiple fibers are fed through openings in a guide flange 30 that extends from filament-placement drum 10. The drum 10 is rotated in a specialized two stage reciprocatory operation as shown in FIGS. 3 and 4 and described at Col. 9, line 20 to Col. 10, line 43. In the first or gathering stage, the roller rotates in a direction to gather the tows. During this stage the roller remains stationary relative to the tool. In the second stage, the direction of rotation is reversed and the tows are applied to the tool using pressure as the roller is moved relative to the tool. Like Tam, Zsolnay provides no teaching of a process, as now claimed by applicant, in which a deposition finger and a deposition head, from which the finger extends, are used in combination to provide multidimensional movement and placement of reinforcement thread on a support surface in order to make multidirectional fibrous reinforcements.

In paragraphs 6-7 of the Office Action, claims 8 and 13 were also rejected under 35 U.S.C. 103(a) as being unpatentable over the primary references in combination with additional secondary references. Since both claims 8 and 13 depend from claim 1, applicant submits that the patentability of these two claims depends upon and is derived from the patentability of claim 1, as discussed above. Accordingly, applicant will not address these additional references in detail.

In view of the above amendments and remarks, applicant respectfully requests that this application be reexamined and allowed. Please charge any fees or credit any overpayments to Fee Account No. 082060 in the name of HEXCEL Corporation.

Respectfully submitted,

Dated: February 09, 2006

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